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10/797,068	03/11/2004	Yih-Feng Hwang	ASH-03-010	4377

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EXAMINER

DENG, ANNA CHEN

ART UNIT	PAPER NUMBER
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2191

NOTIFICATION DATE	DELIVERY MODE
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07/15/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/797,068	Applicant(s) HWANG, YIH-FENG	
	Examiner ANNA DENG	Art Unit 2191	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to amendment filed on 9/20/2007.
2. The Final Office Action mailed 11/21/2007 is withdrawn.
3. Claims 1-28 are pending.

Response to Amendment

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-28 are rejection under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

6. Claims 1-8, and 17-21 are direct to a method. However, the recited steps of the method are held to be non-statutory subject matter because the recited steps of the method are (1) not tied to another statutory class (such as a particular apparatus) or (2) not transforming the underlying subject matter (such as an article or materials) to a different state or thing. Applicant is advised to amend the claims to recite "[a] computer-implemented method" in order to overcome the 101 rejection.

7. Claims 9-16 are direct to a computer-implement system that is not physical components (hardware) to constitute a machine or a manufacture under 101, thus they are non-statutory. Applicant is advised to amend the computer-implemented system comprising a processor or stored in computer readable storage as disclosed in Specification paragraph [0022], in order to overcome the 101 rejection.

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8. Claims 22-28 are directed to a computer-readable medium consisting of a physical **or logical** memory device. A logical memory device is not a physical device, and thus, they are non-statutory. Applicant is advised to amend the claims to recite "[a] computer-readable medium consisting of a physical memory device" in order to overcome the 101 rejection.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4, 6-12, 14-25, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of "Graphic Algorithms to Identify Defects While Reusing Object-Oriented Software Components" by Hwang et al. Oct 23, 1998 (art of record hereinafter Hwang).

Per Claim 1:

Chan teaches **identifying a scope of the integration** (Chan, col. 4, lines 22-32, providing a merge policy to said assimilator device; assimilating the rulesets to produce a new merged ruleset comprising logic required for resolving potential conflicts among rules in accordance with the merge policy) **based on a multi-level top-down approach** (Chan, col. 1, lines 49-67, many rule based systems support backward and forward

chaining. Forward chaining is the process of moving from the “if patterns to the “then” patterns, using the “if” patterns to identify appropriate situations for the deduction of a new assertion or fact or the execution of an action”);

modifying the business rules based on the identified faults (Chan, col. 4, lines 22-32, produce a new merged ruleset comprising logic required resolving potential conflicts among rules in accordance with the merge policy; also, col. 6, lines 38-41, the InterLingua 20 additionally transforms any resulting merged, exchanged, or modified ruleset from CLP into the original format so as to return it to the application from which the ruleset originates) .

Chan does not explicitly teach **identifying faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules.**

However, Hwang teaches **identifying faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules** (Hwang, Fig. 6, Criteria for Generic-DFS Algorithms, Fig. 7, C++ Pseudo Codes for GDFS Algorithms; also, p. 3, Section 4.2. Pseudo Codes for Generic-DFS (GDFS) Algorithms, Based on the criteria defined in Figure 6 for detecting reuse defects, C++ pseudo code for GDFS algorithms are presented as illustrated in Figure. 7, Given a TDG G that comprises n nodes (axioms) and constant c exclusive pairs of nodes. The complexity to detect one or more inconsistency and contradiction defect patterns in G is $O(n)$. The complexity to detect one or more redundancy/subsumption defect patterns in G is $O(n)$).

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by Chan to include identifying faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules using the teaching of Hwang. The modification would be obvious because one of ordinary skill in the art would be motivated to provide algorithms that will effectively identify specification logic defects whose removal will prevent potentially harmful system failure (Hwang, p. 1, Section 1.2. The Research Problem).

Per Claim 2:

The rejection of claim 1 is incorporated, Hwang further teaches **wherein identifying faults in the business rules includes: representing the business rules using a transition-directed graph (TDG) representation** (Hwang, Fig. 4, Transition Directed_Griaph (TDG), Fig. 5, Reuse Defects using TDG representation, and p. 3, Section 4. The Method to Identify Reuse Defect, A new digraph paradigm called transition-directed graph (TDG) [9] is used to represent invariant assertions into a directed graph (digraph)... also see Section 4.1. Transition directed Graph and Criteria).

Per Claim 3:

The rejection of claim 1 is incorporated, Chan further teaches **wherein the multi-level top-down approach includes: a first level that includes high-level software systems** (Chan, col. 6, lines 11-20, FIG. 2 is a diagram depicting the high-level

interaction between the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and applications).

Per Claim 4:

The rejection of claim 3 is incorporated, Chan further teaches **wherein the multi-level top-down approach further includes: a second level that includes business processes of the high-level software systems** (Chan, col. 6, lines 11-20, the various components underlying the conflict handling and assimilator service 19 for rule-based knowledge systems and applications).

Per Claim 6:

The rejection of claim 4 is incorporated, Chan further teaches **comparing the business processes to locate similar business processes that are to be integrated** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the exchange or merger of rulesets (e.g., business policies) with different originating formats in a distributed environment).

Per Claim 7:

The rejection of claim 1 is incorporated, Chan further teaches **wherein identifying the scope of the integration is performed on software systems from multiple merging entities** (Chan, col. 4, lines 8-15, provide for a flexible assimilator service that allows for the exchange or merger of rulesets (e.g., business policies) with

different originating formats in a distributed environment).

Per Claim 8:

The rejection of claim 1 is incorporated Hwang further teaches **wherein the identified faults include faults of at least one of inconsistency, contradiction, circularity, subsumption, redundancy, and incompleteness** (Hwang, p. 3, Section 4.2. Pseudo Codes for Generic-DFS (GDFS) Algorithms, Based on the criteria defined in Figure 6 for detecting reuse defects, C++ pseudo code for GDFS algorithms are presented as illustrated in Figure. 7, Given a TDG G that comprises n nodes (axioms) and constant c exclusive pairs of nodes. The complexity to detect one or more inconsistency and contradiction defect patterns in G is $O(n)$. The complexity to detect one or more redundancy/subsumption defect patterns in G is $O(n)$).

Per Claims 9-12, and 14-16:

These are computer-implemented system versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 17-21:

These are another versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

Per Claims 22-25, and 27-28:

These are computer-readable medium versions of the claimed method discussed above (claims 1-4, and 6-8), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, these claims are also obvious.

11. Claims 5, 13, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al. USPN 6910,028 B2 (hereinafter Chan), in view of "Graphic Algorithms to Identify Defects While Reusing Object-Oriented Software Components" by Hwang et al. Oct 23, 1998 (art of record hereinafter Hwang), further in view of Bahrami, US PUB 2004/0078777 A1 (hereinafter Bahrami).

Per Claim 5:

The rejection of claim 4 is incorporated, and further, the combination of Chan and Hwang does not explicitly teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface**

functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions.

However, Bahrami teaches **wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions** (Bahrami, [0032], a plurality of levels of detail can be shown in activity diagrams where hierarchical process modeling is used. In hierarchical process modeling, a process is modeled on a plurality of levels of detail, such that lower levels or sub-processes are included in higher level processes), .

It would have been obvious to one having ordinary skill in the computer art at the time of the invention was made to modify the method disclosed by the combination of Chan and Hwang to include wherein the multi-level top-down approach further includes: a third level that includes business rules that are defined as transitions in the business processes; a fourth level that includes interface functions that define communications between the business rules; and a fifth level that includes data used by the business rules and the interface functions using the teaching of Bahrami. The modification would be obvious because one of ordinary skill in the art would be motivated to provide closed-loop analysis of a business process (Bahrami, [0005]).

Per Claim 13:

This is computer-implemented system version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Per Claim 26:

This is computer-readable medium version of the claimed method discussed above (claim 5), wherein all claim limitations also have been addressed and/or covered in cited areas as set forth above. Thus, accordingly, this claim is also obvious.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

The combination of Chan and Hwang teaches identifying faults in business rules that define software in the scope of the integration by applying generic depth-first search (DFS)-based techniques to the business rules (Hwang, Figures 6 & 7, and see pages 3-4, related text).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Deng whose telephone

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number is 571-272-5989. The examiner can normally be reached on Monday to Friday 9:30 AM - 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wei Zhen can be reached at 571 -272-3708. The fax phone number for the organization where this application or proceeding is assigned is 703-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Anna Deng/

Examiner, Art Unit 2191

/Ted T. Vo/

Primary Examiner, Art Unit 2191